



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,013	11/26/2003	John Groc	SECO-019/01US	7557
23419 7590 08/22/2007 COOLEY GODWARD KRONISH LLP ATTN: Patent Group Suite 500 1200 - 19th Street, NW Washington, DC 20036-2402			EXAMINER HANNON, CHRISTIAN A	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 08/22/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/724,013	Applicant(s) GROE ET AL.	
	Examiner Christian A. Hannon	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is response to applicant's response filed on 3/6/2007. Claims 1-17 are now pending in the present application. **This action is made final.**

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckert et al (US 6,018,651), hereinafter Bruckert.

Regarding claims 1 & 5 Bruckert teaches a dual diversity receiver and method that includes first and second antennas to receive first and second radio signals, wherein the first and second antennas produce first and second antenna signals that are representative of the received radio signals, the receiver comprising a first pre-amplifier that receives the first antenna signal and produces a first amplified signal (Figure 1, Item 135; Column 5, Lines 17-22 & 34-41) a second pre-amplifier that receives the second antenna signal and produces a second amplified signal (Figure 1, Item 139; Column 5, Lines 17-22 & 34-41) and selection logic to continuously perform monitoring of a signal characteristic of said first and said second amplified signals, that is that as the receiver of Bruckert receives a signal each time the controller checks the received signal, therefore the examiner has construed this as continually performing an

Art Unit: 2618

operation (Column 8, Lines 19-24) and select one of the first pre-amplifier and the second pre-amplifier based upon said monitoring so that its output is processed by the receiver (Column 8, Lines 19-24) wherein said monitoring is performed so as to maintain both phase and amplitude of said output, that is Bruckert teaches that signal selection takes place in order to improve attenuated (amplitude) or delayed (phase) characteristics of a received signal through diversity (Column 8, Lines 52-58). However Bruckert does not explicitly teach that the pre-amplifiers of the prior art are in fact low noise amplifiers (LNAs). However obvious to any person of ordinary skill in the art the selection of LNAs as preamplifiers for a RF receiver is common knowledge. As Bruckert sets forth the intended use is for a coherent receiver, that is one pertaining to a protocol standard (Column 6, Lines 54-61), therefore eliminating noise in the receiver front end is through use of a LNA is very well known. Furthermore as the applicant has demonstrated no criticality of the choice of a LNA as the choice of preamplifier in the present application the claim is rendered obvious in view of Bruckert's teachings. That is it would have been obvious to one of ordinary skill in the art to implement a LNA in Bruckert's teachings as a preamplifier in order to eliminate noise in the receiver front end to improve the reception quality of the device.

Regarding claim 2, Bruckert teaches claim 1, wherein the first and second LNA comprise first and second bias generator circuits that control the operation of their respective LNA based on a selection signal (Column 10, Lines 1-9).

Regarding claim 3, Bruckert teaches claim 1, wherein said selection logic is operative to switch between said first and said second LNA when the currently selected signal fades below a selected threshold (Column 13, Lines 58-63).

Regarding claim 4, Bruckert teaches claim 1, wherein said selection logic is operative to switch between said first and second LNA when the elapsed time receiving the current signal exceeds the time coherence of the wireless channel (Column 13, Lines 47-49). The examiner has interpreted the time before choosing to select either antenna to the receiver as analogous to the elapsed time receiving on a wireless channel has elapsed.

Regarding claim 6, Bruckert teaches claim 5, further comprising using a digital filter to measure said signal characteristics (Column 9, Lines 29-32), Bruckert teaches that the item 130 of figure 1, smoothes or filters the signal characteristics utilized by the controller to control diversity.

Regarding claim 8, Bruckert teaches claim 1 wherein said selection logic comprises a switching apparatus integrated within said first and said second LNAs; wherein said switching apparatus is operative to switch said output from said first and second LNAs (Column 5, Lines 17-22; Column 8, Lines 19-24).

Regarding claim 9, Bruckert teaches claim 8, wherein said switching apparatus is positioned in the signal path after said first and second LNAs (Figure 1, Items 118 & 120).

Regarding claim 10, Bruckert teaches a dual diversity receiver system comprising a first antenna to receive a radio signal and produce a first antenna signal

(Figure 1, Item 114; Column 5, Lines 17-22 & 34-41) a second antenna spatially separated from said first antenna to receive said radio signal and produce a second antenna signal (Figure 1, Item 116; Column 5, Lines 17-22 & 34-41; Column 8, Lines 35-38) a first pre-amplifier to receive said first antenna signal and produce a first amplified signal (Figure 1, Item 135; Column 5, Lines 17-22 & 34-41) a second pre-amplifier to receive said second antenna signal and produce a second amplified signal (Figure 1, Item 139; Column 5, Lines 17-22 & 34-41) and selection logic to select one of the first LNA and second LNA based upon comparison of a first measured value of a signal characteristic of said first amplified signal and a second measured value of said signal characteristic of said second amplified signal (Column 10, Lines 49-55; Column 13, Lines 58-63) wherein said signal characteristic of said first and said second amplified signal is measured so as to maintain both phase and amplitude of said amplified signal, that is Bruckert teaches that signal selection takes place in order to improve attenuated (amplitude) or delayed (phase) characteristics of a received signal through diversity (Column 8, Lines 52-58). However Bruckert does not explicitly teach that the pre-amplifiers of the prior art are in fact low noise amplifiers (LNAs). However obvious to any person of ordinary skill in the art the selection of LNAs as preamplifiers for a RF receiver is common knowledge. As Bruckert sets forth the intended use is for a coherent receiver, that is one pertaining to a protocol standard (Column 6, Lines 54-61), therefore eliminating noise in the receiver front end is through use of a LNA is very well known. Furthermore as the applicant has demonstrated no criticality of the choice of a LNA as the choice of preamplifier in the present application the claim is rendered

obvious in view of Bruckert's teachings. That is it would have been obvious to one of ordinary skill in the art to implement a LNA in Bruckert's teachings as a preamplifier in order to eliminate noise in the receiver front end to improve the reception quality of the device.

Regarding claim 11, Bruckert teaches the receiver of claim 10, wherein said signal characteristic is a signal power level (Column 8, Lines 52-58).

Regarding claim 12, Bruckert teaches claim 11, wherein said selection logic is operative to switch between said first and said second LNA when said signal power level falls below a selected threshold (Column 13, Lines 58-63).

Regarding claim 13, Bruckert teaches claim 10, wherein said selection logic is operative to switch between said first and said second LNA when the elapsed time receiving the current signal exceeds the time coherence of the wireless channel (Column 13, Lines 47-49). The examiner has interpreted the time before choosing to select either antenna to the receiver as analogous to the elapsed time receiving on a wireless channel has elapsed.

Regarding claim 14, Bruckert teaches claim 10 wherein said selection logic comprises a switching apparatus integrated within said first and said second LNAs (Column 5, Lines 17-22; Column 8, Lines 19-24).

Regarding claim 15, Bruckert teaches claim 10 wherein said switching apparatus is positioned in the signal path after the first and second LNAs (Figure 1, Items 118 & 120).

Regarding claim 16, Bruckert teaches claim 10 further comprising using a digital filter to measure said signal characteristics (Column 9, Lines 29-32), Bruckert teaches that the item 130 of figure 1, smoothes or filters the signal characteristics utilized by the controller to control diversity.

3. Claims 7 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckert in view of Rey et al (US 6,173,011), hereinafter Rey.

Regarding claims 7 & 17 Bruckert teaches claims 6 & 16 respectively, however Bruckert fails to detail that the digital filter is an IIR filter configured to perform a channel estimate. Rey teaches an IIR filter used to perform a channel estimate (Column 3, Lines 45-47; Rey). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Rey with those of Bruckert in order to provide for more accurate integration when operating in a CDMA standard.

Response to Arguments

4. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian A. Hannon whose telephone number is (571) 272-7385. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



C. A. Hannon
August 14, 2007



EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600